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RELATIONSHIP BETWEEN IMPLANTED POSTERIOR CHAMBER LENS AND POSTERIOR CAPSULE - MEASURED BY SCHEIMPFLUG PHOTOGRAPHY

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Purpose: Implantation of posterior chamber lenses (intraocular lens = IOL) is an established method to replace opaque lenses. Prefered positioning of implanted lenses is in the capsular bag either with or without touching the posterior capsule. Purpose of the present study is to determine the real position of the implanted lens in relation to the posterior capsule and to measure a possible distance between IOL and posterior capsule by Scheimpflug-photography.
Method: 62 eyes of 50 patients with uncomplicated senile cataract underwent phacoemulsification and implantation of a posterior chamber lens during a period of 6 months. Postoperatively the position of the IOL was measured by Scheimpflug-photography.
Results: Out of 62 pseudophacic eyes of 50 patients 48 photos were reproducible. 33 photos showed a measurable distance between posterior IOL and posterior capsule. In 15 photos the posterior IOL touched the posterior capsule.
Conclusion: Against general assumption that the IOL normally touches the posterior capsule our results show that only about 30% of implanted posterior chamber lenses touch the posterior capsule.

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A new coating method to improve intraocular lenses tolerance

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Purpose: Several attempts to improve the intraocular lenses tolerance by surface modification had been tried. A new method of crosslinked heparin grafting is presented.
Methods: A modified heparin is crosslinked on a pretreated PMMA surface. Heparin grafted onto the surface is equivalent to a free short length chain. An analysis of the surface has been carried out by ESCA (electron spectroscopy for chemical analysis).
Results: The thickness of the treatment was about 3 to 5 nm. The treated lenses were found biocompatible. The coating was found mechanically stable but also resistant to pH variation and to washing. As anti-thrombogenic sites were used to graft the heparin, the coating should not exhibit any anti-thrombogenic effect. In vitro experiments demonstrated that short length heparin chains inhibit fibroblasts growth factor activity[a]. Undergoing experiments and clinical trials were designed to confirm these hypotheses. Results of these tests will be presented.
Conclusions: A new method has been developped to crosslinked heparin on lenses. Other properties than anti-inflammatory ones are expected from this new technique of heparin grafting. Experiments are underway to demontrate them.

a: Guimond S, Maccarana M, Olwin BB, Lindahl U, Rapraeger AC: Activating and inhibitory heparin sequences for FGF-2 (basic FGF). J Biol Chem 268 (32): 23906-23914, 1993

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COMPARATIVE STUDY OF ONE IMPLANTATION OF HEMA AND PMMA IOLS IN THE RABBIT.

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Purpose: To investigate ocular biocompatibility of a new HEMA (hydroxyethylmetacrylate) foldable IOL.
Material and methods: 16 albino rabbits underwent extracapsular lens extraction in the right eye, under general anesthesia, and were followed for one year: 6 rabbits were implanted with a 6mm HEMA IOL (IOLTECH, France), 7 with a standard 6mm PMMA IOL, and 3 non implanted rabbits served as controls. Animals were repeatedly examined by biomicroscopy and ERG, and histologically investigated at the end of the experiment.
Results: During one year following surgery, no significant difference was found between the three groups, in terms of corneal opacification (dystrophic or inflammatory), anterior segment inflammation, cellular deposition on IOL, IOL displacement, capsular fibrosis, IOP increase or retinal detachment. A marked iris vasodilation was found in the two implanted groups as compared to control eyes, without difference between HEMA and PMMA. Analysis of retinal function by ERG did not find any statistical difference between the three groups all along the study, and histology only showed a mild anterior segment infiltration by inflammatory vimentin-expressing cells in all groups.
Conclusions: This study showed a similar biocompatibility of HEMA and PMMA IOLs when implanted for one year in the rabbit eye.

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Title:	**CONTRAST SENSITIVITY IN PATIENTS WITH DIFFERENT TYPES OF MULTIFOCAL IOLS (MONOCULAR VS BINOCULAR).**
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Setting:	Department of Visual Sciences, Biomedical Institute for Light and Image Research, University of Coimbra, Coimbra, Portugal.
Purpose:	Evaluate contrast sensitivity of two different types of multifocal IOL (bifocal vs. difractive IOLs). One bifocal and one difractive IOL were implanted in the same patient. A control group were also studied.
Methods:	Measurements were performed using VISTECH contrast sensitivity test system 6500 in its five spatial frequencies (1.5, 3, 6, 12 and 18 cycles per degree of visual angle (c/d) and under three types of illumination (dim, normal, bright light).
Results:	A loss of contrast sensitivity was found with both type of multifocal (difractive IOL; p=0.06 and bifocal IOL p=0.07) when compared with control group. Difractive IOL group presented better contrast sensitivity when compared to bifocal IOLs (N.S.). When comparing binocular contrast sensitivity no difference were found between the patients with multifocal IOLs and the control group.
Conclusions:	There is a decrease of contrast sensitivity in patients with multifocal IOL whatever the type of IOL which apparently is minimized by binocular function and comparable to the control group.